

CLAIMS:

1. Isolated and purified deoxyribonucleic acid (DNA), characterized in that said DNA includes a sequence according to SEQ ID NO:1 or a part of SEQ ID NO:1, or a sequence that is substantially homologous to SEQ ID NO:1.
2. Isolated and purified deoxyribonucleic acid (DNA), characterized in that said DNA includes a sequence according to SEQ ID NO:3 or a part of SEQ ID NO:3, or a sequence that is substantially homologous to SEQ ID NO:3.
3. A vector for transformation of plant cells, characterized in that said vector contains a deoxyribonucleic acid sequence according to SEQ ID NO:1, or a part of SEQ ID NO:1, or a sequence that is substantially homologous to SEQ ID NO:1.
4. A vector for transformation of plant cells, characterized in that said vector contains a deoxyribonucleic acid sequence according to SEQ ID NO:3, or a part of SEQ ID NO:3, or a sequence that is substantially homologous to SEQ ID NO:3.
5. A vector for transformation of plant cells, characterized in that said vector contains a deoxyribonucleic acid sequence according to SEQ ID NO:23, which is SEQ ID NO:1 altered to contain an 81 bp insertion, such that the deduced amino acid sequence of the encoded protein contains the repeated sequence SHAGLFNLCVVVLIAVNSRLIIENLMK according to SEQ ID NO:25, where the spacing and identity of the underlined amino acids are identical or are replaced by conserved substitutions.
6. A vector according to claim 3, characterized in that said sequence is present in said vector in a sense orientation.
7. A vector according to claim 3, characterized in that said sequence is present in said vector in an anti-sense orientation.
8. Plasmid pDGATcDNA (ATCC PTA-989).
9. Plasmid pDGATgene (ATCC PTA-988).
10. A plant having a genome, characterized in that the genome contains an introduced nucleotide sequence of SEQ ID NO:1, or a part of SEQ ID NO:1, or a sequence that is substantially homologous to SEQ ID NO:1.

11. A plant seed having a genome, characterized in that said genome contains an introduced nucleotide sequence of SEQ ID NO:1, or a part of SEQ ID NO:1, or a sequence that is substantially homologous to SEQ ID NO:1.

12. A genetically transformed plant, characterized in that said genome has been transformed by a vector according to claim 3 or claim 4.

13. A genetically transformed plant seed, characterized in that said seed has been transformed by a vector according to claim 3 or claim 4.

14. A plant seed as claimed in Claim 11 or Claim 13, characterized by exhibiting an altered seed oil content compared to an average of a statistically-significant number of seeds of genomically-unmodified plants of the same genotype grown in identical conditions at the same time.

15. A plant seed as claimed in Claim 11 or Claim 13, characterized by exhibiting an altered diacylglycerol content in its seed oil compared to an average of a statistically-significant number of seeds of genomically-unmodified plants of the same genotype grown in identical conditions at the same time.

16. A plant seed as claimed in Claim 11 or Claim 13, characterized by exhibiting a seed oil with an altered fatty acyl composition compared to an average of a statistically-significant number of seeds a genomically-unmodified plant of the same genotype grown in identical conditions at the same time.

17. A plant as claimed in Claim 10 or Claim 12, characterized by exhibiting an enhanced biomass compared to an average of a statistically-significant number of genomically-unmodified plants of the same genotype grown in identical conditions at the same time.

18. A seed as claimed in Claim 11 or Claim 13, characterized by exhibiting an enhanced biomass compared to an average of a statistically-significant number of seeds of genomically-unmodified plants of the same genotype grown under identical conditions at the same time.

19. A method of producing transgenic plants by introducing a nucleotide sequence into a genome of said plant, characterized in that said nucleotide sequence introduced into said genome includes SEQ ID NO:1 or SEQ ID NO:3, or a part of SEQ

ID NO:1 or SEQ ID NO:3, or a sequence that is substantially homologous to SEQ ID NO:1, or to SEQ ID NO:3, or a part of SEQ ID NO:1 or SEQ ID NO:3.

20. A method according to claim 19, characterized in that said plant is a member of the Brassicaceae.

21. A method according to claim 19, characterized in that said plant is selected from the group consisting of *Arabidopsis thaliana*, borage (*Borago* spp.), Canola, castor (*Ricinus communis*), cocoa bean (*Theobroma cacao*), corn (*Zea mays*), cotton (*Gossypium* spp.), *Crambe* spp., *Cuphea* spp., flax (*Linum* spp.), *Lesquerella* and *Limnanthes* spp., Linola, nasturtium (*Tropaeolum* spp.), *Oenothera* spp., olive (*Olea* spp.), palm (*Elaeis* spp.), peanut (*Arachis* spp.), rapeseed, safflower (*Carthamus* spp.), soybean (*Glycine* and *Soja* spp.), sunflower (*Helianthus* spp.), tobacco (*Nicotiana* spp.), *Vernonia* spp., wheat (*Triticum* spp.), barley (*Hordeum* spp.), rice (*Oryza* spp.), oat (*Avena* spp.) sorghum (*Sorghum* spp.), rye (*Secale* spp.) and other members of the Gramineae.

22. A plant DNA sequence or part thereof, characterized in that the sequence is substantially homologous to at least a part of SEQ ID NO:1 or SEQ ID NO:3, and in that said sequence has been isolated, characterized or designed using sequence information from SEQ ID NO:1 or SEQ ID NO:3, or SEQ ID NO:1 containing an 81 bp insertion [SEQ ID NO:23] such that the deduced amino acid sequence of the encoded protein contains the repeated sequence SHAGLFNLCYVVLIAVNSRLIIENLMK according to SEQ ID NO:25, where the spacing and identity of the underlined amino acids are identical or are replaced by conserved substitutions.

23. A method of changing the oil content, acyl composition or diacylglycerol/triacylglycerol proportions of the seed oil of plant seeds by introducing a sense or anti-sense nucleic acid construct into a plant transformation vector, using the vector to transform the genome of a plant or plant seed, and then growing the plant or plant seed and extracting the oil from the plant seed, characterized in that said nucleic acid sequence is SEQ ID NO:1 or SEQ ID NO:3, or a part of SEQ ID NO:1 or SEQ ID NO:3, or a sequence that is substantially homologous to SEQ ID NO:1 or SEQ ID NO:3.